

Application No. 10/784,699  
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Reply to office action dated October 26, 2007

**REMARKS**

Claims 39 and 49–89 are cancelled. Claims 1–38, 40–48, and 90 are pending in this application. Claims 33, 35–37, and 47 are amended herein to correct dependencies and antecedent basis errors. The claims contain no new matter. Claims 1, 7, 13, 18, 23, 28, 33, and 41 are the pending independent claims.

**Claim Objections**

Claims 35–39, 47, and 48 were objected to as being improper dependent claims for not reciting the dependency of the claims in the alternative.

Claims 35–37 and 47 have been amended to recite the dependency in the alternative. Claims 38 and 48 depend from claims 37 and 47, respectively.

The Examiner objected: “claim 47 is an improper claim since it does not further limit the claim from which it depends. A claim cannot recite ‘replacing’ a limitation from a claim from which it depends.” Applicants respectfully submit that the Examiner may have intended to object to claim 39 instead of claim 47 because claim 39 includes the phrase “replaced by.” Claim 39 has been cancelled.

Rejection of Claims 1–34, 40–46, and 90 Under 35 U.S.C. § 103(a) over McIntyre et al. (4,789,553), as further evidenced by Dameno et al. (EP1338209), Holmes et al. (EP 275717), Howard et al. (EP415787), Tan (WO 98/52422), Hunter (4539212), Tonner et al. (4,262,027), Brooks et al. (3,886,296), Doster et al (4,597,976), Raffensberger (4,734,291), Barnes et al. (5,599,573), Oh (5,695,801), further in view of Kenji et al. (JP 8-131065), Hoshizaki Electric Co. et al. (JP 6-113718), Tanaka et al. (JP 9-187221),

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Hoshizaki Electric Co. (JP 10-262580), Hoshizaki et al. (JP 11-137162), Hoshizaki Electric Co. (JP 10-327833), Hoshizaki Electric Co. (JP 10-262583), Nippon Sanso KK (JP 2000-60512), Hoshizaki Electric Co. (JP 2000-139374), Sanki Sangyo KK (JP 2000-312576), Numata (JP 7-274921), Cumakov et al. (EP 642824), Nisshin Flour Milling Co. (JP 6-113769), Okazaki (JP 4-108353), and Suzuki Ryuji (JP 1-196273).

McIntyre et al., Dameno et al., Holmes et al., Howard et al., Tan, Hunter, Tonner et al., Brooks et al., Doster et al., Raffensberger, Barnes et al., and Oh are directed to using conventional acidulants, such as organic acids, inorganic acids, and polymeric acids, to reduce the pH of a food followed by a heat treatment step. McIntyre et al., Dameno et al., Holmes et al., Howard et al., Tan, Hunter, Tonner et al., Brooks et al., Doster et al., Raffensberger, Barnes et al., and Oh do not teach or suggest using electrodialyzed compositions instead of conventional acidulants. One of ordinary skill in the art can readily calculate the buffering capacity of any of the conventional acids used to determine the pH of a conventional acidulant that is required to adjust the pH of the food product added thereto to a desired level. One of ordinary skill in the art would not know the buffering capacity of an electrodialyzed solution nor whether such a composition could be used to adjust the pH of a food product to below pH 4.6.

Applicants have not obtained English translations of each of the fourteen Japanese references cited by the Examiner. Applicants do note, however, that JP 11-137162 has an English equivalent, U.S. Patent No. 6,326,048, which has been reviewed. For the remaining Japanese references, only the English language abstracts have been reviewed. The English abstracts of Kenji et al. (JP 8-131065), Hoshizaki Electric Co. et al. (JP 6-113718), Tanaka et al. (JP 9-187221), Hoshizaki Electric Co. (JP 10-262580),

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Hoshizaki Electric Co. (JP 10-327833), Hoshizaki Electric Co. (JP 10-262583), Nippon Sanso KK (JP 2000-60512), Hoshizaki Electric Co. (JP 2000-139374), Sanki Sangyo KK (JP 2000-312576), Numata (JP 7-274921), Cumakov et al. (EP 642824), Nisshin Flour Milling Co. (JP 6-113769), Okazaki (JP 4-108353), and Suzuki Ryuji (JP 1-196273), as well as Hoshizaki et al. (JP 11-137162; U.S. Patent No. 6,326,048) indicate that these references are directed to the use of electrodialyzed solutions of varying pH's in combination with food products. However, Hoshizaki et al., Cumakov et al., and the English abstracts of the Japanese references do not teach using these electrodialyzed solutions to adjust the pH of the food product to a pH of 4.6 or less. In other words, several of the cited references teach the pH of the electrodialyzed solution but not the pH of the treated food products.

JP 8-131065 is directed to suppressing the browning of shredded vegetables or fruits by reacting acidic water prepared by electrolyzing water with the shredded food and then heat-treating the food at low temperature. The abstract of JP 8-131065 does not teach or suggest that the pH of the shredded vegetables or fruits is adjusted to pH 4.6 or less.

JP 6-113718 is directed to washing fresh fish and shellfish with acidic water produced by electrolysis. The abstract of JP 6-113718 does not teach or suggest that the pH of the fish or shellfish is adjusted to pH 4.6 or less.

JP 9-187221 is directed to spraying, immersing, or brush coating fruits and vegetables with electrolyzed anode water. The abstract of JP 9-187221 does not teach or suggest that the pH of the fruits and vegetables is adjusted to pH 4.6 or less.

JP 10-262580 is directed to boiling rice with acidic water formed by electrolysis of water. The abstract further teaches that the boiled rice is then blended with vinegar

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(which comprises acetic acid, a conventional acidulant) "because the texture-reduction thereof according to the time passage is low and discoloring degree thereof is also small." The abstract of JP 10-262580 does not teach or suggest that the pH of the rice is adjusted to pH 4.6 or less. Furthermore, because JP 10-262580 teaches addition of vinegar, JP 10-262580 would not avoid introducing undesirable flavors and tastes to the food product.

JP 11-137162 (or its U.S. equivalent, U.S. Patent No. 6,326,048) teaches kneading wheat flour with electrolyzed water, either alkaline or acidic, to prepare dough. JP 11-137162 does not teach or suggest that the pH of the resulting dough is adjusted to pH 4.6 or less. Instead, JP 11-137162 (USP 6,326,048) teaches that bread made out of dough kneaded with acidic water was superior in dispersion and elasticity of bubbles. JP 11-137162 (USP 6,326,048) does not mention the pH of the dough, nor that the dough is preserved by kneading the dough with the acidic water.

JP 10327833 is directed to successively immersing a food in acidic water obtained by electrolysis and then in alkali water obtained by electrolysis to sterilize the food product. The abstract of JP 10327833 does not teach or suggest that the pH of the food product is adjusted to pH 4.6 or less.

JP 10262583 is directed to preparing a noodle dough having a neutral pH using acidic water obtained by electrolysis. Thus, the abstract of JP 10327833 cannot teach or suggest adjusting the pH of the noodle dough to pH 4.6 or less.

JP 2000060512 is directed to washing a food product with electrolyzed acidic water for 15 sec to 2 minutes. The treated food product is subsequently washed with water to remove the electrolyzed acidic water. The abstract of JP 2000060512 actually teaches away from the claimed invention because the abstract says that the invention

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described therein is "capable of avoiding the deterioration in the quality of the food due to the employment of electrolyzed acidic water, because the electrolyzed acidic water adhered to the food can be removed." Thus, the abstract of JP 2000060512 teaches that electrolyzed acidic water deteriorates the quality of the food and should be rinsed off with water after treatment.

JP 2000139374 is directed to using electrolyzed water (either acidic water produced in an anode chamber or alkaline water produced in a cathode chamber) to wash, immerse, and add to rice. The abstract of JP 2000139374 does not teach or suggest that the pH of the rice is adjusted to pH 4.6 or less.

JP 2000312576 is directed to washing fruits and vegetables with alkaline water formed by electrolysis, followed by washing with an ethanol solution or acidic water formed by electrolysis, and then finally by washing with water having pH 4-6 formed by mixing the alkaline water with the acidic water. The abstract of JP 2000312576 does not teach or suggest that the pH of the fruits and vegetables is adjusted to pH 4.6 or less by the washing steps.

JP 7274921 is directed to immersing a food into a strongly acidic water and heating it. The abstract of JP 7274921 does not teach or suggest that the pH of the food is adjusted to pH 4.6 or less.

EP 0642824 is directed to methods for adjusting the pH of water so that the pH of soil can be adjusted. While EP 0642824 mentions in one paragraph at page 6, starting at line 43, that the water made by the method described therein could be used "in the food industry such as the food product preserving industry," EP 0642824 does not provide teach or suggest how such water could be used, at what pH, or the effect of the water on the food products treated therewith. Instead, the examples of EP

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0642824 are directed to adjusting the pH of soil samples. Even so, the examples do not teach a pH adjustment of the soil below 4.6. Table 1 of EP 0642824 shows that the pH of soil suspension I was only reduced from pH 5.7 to pH 5.18 after 1 day and to pH 5.77 after 7 days. The pH of soil suspension II was only reduced from pH 7.60 to 7.07 after 1 day and to pH 7.39 after 7 days. In both instances, the applied water had a pH of 2.0. In essence, EP 0642824 teaches away from the claimed invention because one of ordinary skill in the art would not be motivated to use an electrodialyzed composition to adjust the pH of a food product to pH 4.6 or less after reading EP 0642824 because EP 0642824 does not even come close to the claimed pH levels, even using highly acidic water compositions.

JP 6113769 is directed kneading a raw material with acidic ionic water to make noodles. The abstract of JP 6113769 does not teach or suggest that the pH of the noodles is adjusted to pH 4.6 or less.

JP 4108353 is directed to boiling raw noodles in electrolyzed acidic water. The abstract of JP 4108353 does not teach or suggest that the pH of the noodles is adjusted to pH 4.6 or less.

JP 1196273 is directed to preparing noodles having improved shelf stability by blending grain flour with an additive and alkali ion water. The abstract of JP 1196273 does not teach or suggest that the pH of the noodles is adjusted to pH 4.6 or less.

Thus, Hoshizaki et al, Cumakov et al, and the English abstracts of the Japanese references provide no teaching that the acidified water is known to lower pH to 4.6 or less. Thus, these references are not properly combinable with McIntyre et al., Dameno et al., Holmes et al., Howard et al., Tan, Hunter, Tonner et al., Brooks et al., Doster et al., Raffensberger, Barnes et al., and Oh.

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Furthermore, Hoshizaki et al., Cumakov et al., and the English abstracts of the Japanese references do not teach or suggest that the electrodialyzed solutions have a buffering capacity sufficient to maintain a pH once a food product is added to it, let alone that the electrodialyzed solutions are able to decrease the pH of the food product to 4.6 or less. One of ordinary skill in the art would have no reason to believe that electrodialyzed solutions would be able to adjust the pH of the food product to pH 4.6 or less.

Rejection of Claims 1–48 Under 35 U.S.C. § 103(a) over Kenji et al. (JP 8-131065), as further evidenced by Hoshizaki Electric Co. et al. (JP 6-113718), Tanaka et al. (JP 9-187221), Hoshizaki Electric Co. (JP 10-262580), Hoshizaki et al. (JP 11-137162), Hoshizaki Electric Co. (JP 10-327833), Hoshizaki Electric Co. (JP 10-262583), Nippon Sanso KK (JP 2000-60512), Hoshizaki Electric Co. (JP 2000-139374), Sanki Sangyo KK (JP 2000-312576), Numata (JP 7-274921), Cumakov et al. (EP 642824), Nissin Flour Milling Co. (JP 6-113769), Okazaki (JP 4-108353), and Suzuki Ryuji (JP 1-196273), further in view of McIntyre et al. (4,789,553), as further evidenced by Dameno et al. (EP1338209), Holmes et al. (EP 275717), Howard et al. (EP415787), Tan (WO 98/52422), Hunter (4539212), Tonner et al. (4,262,027), Brooks et al. (3886296), Doster et al (4,597,976), Raffensberger (4,734,291), Barnes et al. (5,599,573), Oh (5,695,801).

Applicants respectfully submit that claims 1–38 and 40–48 are patentable for at least the same reasons discussed above in regard to the first ground of rejection. None of the abstracts of the cited references teach or suggest using an electrodialyzed solution to bring the pH of the food product to pH 4.6 or less. Thus, the references

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directed to using conventional acidulants are not properly combinable with references directed to using electrodialyzed compositions.

Information Disclosure Statement

The Examiner has requested that the Applicants "point out which references are directed to associating electrodialyzed water with food products, which water is capable of lowering the pH of the food products, whether or not the particular process is directed to a preservation process."

To ease the Examiner's burden, the Applicants identify in the table below the references cited in the European Search Report for the corresponding European application, all of which were previously cited herein.

<u>Reference</u>
U.S. Pat. No. 3,845,226
U.S. Pat. No. 5,260,080
U.S. Pat. No. 5,332,587
EP 0275717
FR 2674848
WO 98/52422
Cuperus non-patent reference

Applicants also provide the following table that identifies the previously cited references directed to using electrodialyzed water with food products.

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<u>Reference</u>
U.S. Pat. No. 3,165,415
U.S. Pat. No. 3,615,664
U.S. Pat. No. 4,138,501
U.S. Pat. No. 4,317,841
U.S. Pat. No. 4,322,275
U.S. Pat. No. 4,351,710
U.S. Pat. No. 4,936,962
U.S. Pat. No. 4,938,856
U.S. Pat. No. 4,971,701
U.S. Pat. No. 5,013,573
U.S. Pat. No. 5,260,080
U.S. Pat. No. 6,204,362
U.S. Pat. No. 6,326,048
EP 0109868
EP 0233566
DE 2846502
JP 4-108353
(cited by the Examiner herein)

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<u>Reference</u>
JP 6-113769 (cited by the Examiner herein)
JP 63044860
JP 63044861
JP 7-274921 (cited by the Examiner herein)
JP 7289178
JP 8-131065 (cited by the Examiner herein)
JP 9-187221 (cited by the Examiner herein)
JP 4-278057
JP 10-262580 (cited by the Examiner herein)
JP 10-262583 (cited by the Examiner herein)
JP 10327833 (cited by the Examiner herein)
JP 11-137162 (cited by the Examiner herein)

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<u>Reference</u>
JP 1-196273 (cited by the Examiner herein)
JP 2000-60512 (cited by the Examiner herein)
JP 2000-139374 (cited by the Examiner herein)
JP 2000-300193
JP 2000-312576 (cited by the Examiner herein)
JP 2002-159260
FR 2514615
CN 1242171
Quoc et al. non-patent reference

Applicants also bring to the Examiner's attention that Applicants have filed herewith an Information Disclosure Statement cross-citing applications co-owned by the Assignee herein that are directed to electrodialyzed compositions or the use thereof.

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The Commissioner is hereby authorized to charge any additional fees which may be required with respect to this communication, or credit any overpayment, to Deposit Account No. 06-1135.

Respectfully submitted,  
FITCH, EVEN, TABIN & FLANNERY

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James P. Krueger  
Registration No. 35,234

120 South LaSalle Street, Suite 1600  
Chicago, Illinois 606033406  
Telephone (312) 577-7000  
Facsimile (312) 577-7007  
496213